

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) An audio reproduction apparatus comprising:

- input means for inputting an input audio signal;
- an output for outputting an output audio signal derived
5 from the input audio signal;
- a cost input for inputting a mathematical cost derived from a measurement, ~~which said measurement is being user-~~
influenceable; and
- a conditioning unit, ~~capable of~~ for delivering the output
10 audio signal in dependence of the mathematical cost,
characterized in that the conditioning unit comprises ~~an~~ audio
processing means ~~arranged to process~~ for processing the input audio
signal to derive the output audio signal with a reproduction
quality in dependence ~~of~~ on the mathematical cost, whereby a user
15 is able to discern, by the reproduction quality, a deviation of the
mathematical cost from a predetermined optimal mathematical cost.

2. (Currently Amended) ~~An~~ The audio reproduction apparatus as
claimed in claim 1, wherein the reproduction quality comprises a
three-dimensional position of a virtual sound source, the audio
processing means being able to simulate the virtual sound source by
5 ~~means of~~ using the output audio signal, whereby as the mathematical
cost deviates from the predetermined optimal mathematical cost, the

three-dimensional position of the virtual sound source deviates from a predetermined optimal position.

3. (Currently Amended) ~~An~~The audio reproduction apparatus as claimed in claim 2, wherein the audio processing means comprises a filter ~~arranged to simulate~~for simulating the position of the virtual sound source by deriving the output audio signal by
5 filtering the input audio signal with a user dependent head related transfer function.

4. (Currently Amended) ~~An~~The audio reproduction apparatus as claimed in claim 2, wherein the audio processing means comprises an audio processing unit ~~arranged to simulate~~for simulating the position of the virtual sound source by changing a property of the
5 output audio signal selected from signal amplitude and added reverberation.

5. (Currently Amended) ~~An~~The audio reproduction apparatus as claimed in claim 1, wherein the audio processing means ~~is arranged to derive~~derives a second output audio signal, together with the output audio signal constituting a stereo audio signal, the audio
5 processing means ~~being arranged to derive~~deriving the stereo audio signal from the input audio signal with a specified stereo quality dependent on the mathematical cost.

6. (Currently Amended) ~~An~~The audio reproduction apparatus as claimed in claim 1, wherein the reproduction quality comprises a specification of a distribution of frequencies of the output audio signal.

7. (Currently Amended) ~~An~~The audio reproduction apparatus as claimed in claim 1, ~~comprising wherein said audio reproduction apparatus further comprises~~ a first quality calculation unit for determining the reproduction quality for use in the subsequent
5 derivation of the output audio signal by the audio processing means.

8. (Currently Amended) ~~An~~The audio reproduction apparatus as claimed in claim 1, ~~comprising wherein said audio reproduction apparatus further comprises:~~

_____quality measuring means for measuring an output quality
5 measure of the output audio signal, ~~;~~ and ~~comprising~~

_____parameter value calculation means for calculating a
parameter value, for use in the subsequent derivation of the output
audio signal by the audio processing means.

9. (Currently Amended) ~~An~~The audio reproduction apparatus as claimed in claim 1, ~~wherein said audio reproduction apparatus further comprises~~ a mathematical cost calculation unit ~~is comprised~~
~~which is arranged to derive~~for deriving the mathematical cost from
5 the measurement receivable from a measurement device.

10. (Currently Amended) ~~An~~ The audio reproduction apparatus as claimed in claim 9, wherein the mathematical cost calculation unit ~~is arranged to derive~~ derives the mathematical cost based on a difference between the measurement and a chosen value.

11. (Currently Amended) ~~An~~ The audio reproduction apparatus as claimed in claim 9, wherein the mathematical cost calculation unit ~~is arranged to derive~~ derives the mathematical cost from a biometric measurement.

12. (Currently Amended) An audio feedback system comprising:
- an audio source;
- a measurement device ~~arranged to deliver~~ for delivering a measurement which is user-influenceable;

5 - a mathematical cost calculation unit, ~~arranged to derive~~ for deriving a mathematical cost from the measurement;

- a sound production device; and

- a conditioning unit ~~arranged to receive~~ for receiving an input audio signal from the audio source, to receive the

10 mathematical cost, and ~~to deliver~~ for delivering to the sound production device an output audio signal derived from the input audio signal, in dependence ~~of~~ on the mathematical cost,

characterized in that the conditioning unit comprises an audio

processing means ~~arranged to process~~ for processing the input audio

15 signal to derive the output audio signal with a reproduction

quality in dependence ~~of~~on the mathematical cost, whereby a user is able to discern, by the reproduction quality, a deviation of the mathematical cost from a predetermined optimal mathematical cost.

13. (Currently Amended) A method of deriving an output audio signal from an input audio signal in dependence ~~of~~on a mathematical cost derived from a measurement which is user-influenceable, characterized in that the output signal is derived
5 with a specified reproduction quality dependent on the mathematical cost, whereby a user is able to discern, by the reproduction quality, a deviation of the mathematical cost from a predetermined optimal mathematical cost.

14. (Cancelled).

15. (Currently Amended) A ~~data-carrier~~computer-readable medium storing ~~the~~a computer program ~~of claim 14~~enabling a processor to perform the method as claimed in claim 13.